



SEQUENCE LISTING

<110> Lamberty, Mireille
Bulet, Phillipe
Brookhart, Gary
Hoffman, Jules

<120> GENE CODING FOR HELIOMICINE, AND USE THEREOF

<130> A33595-PCT-USA (075188.0110)

<140> 09/673,274

<141> 1999-04-12

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<151> 1999-04-12

<150> FR 98 04933

<151> 1998-04-15

<160> 53

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 147

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 1

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agtgactgca acggcgagtg caagcgccgc ggttacaagg gtggccattg tggatccttc 120

gctaacgtta actgttggtg tgaaacc 147

<210> 2

<211> 169

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 2

gataagctta tcggttcctg cgtgtggggt gctgtgaact acacttccga ttgcaacggt 60

gagtgcgaaga ggaggggtta caaggggtgt cactgcggtt ccttcgctaa cgtgaactgc 120

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gtgctgtgaa ctacacttcc gattgcaacg gtgagtgcaa gaggaggggt tacaaggggtg 180
gtcactgcgg ttccttcgct aacgtgaact gctggtgcga gacttgagag ctcggcgagg 240
cgaacgtgtc gacggatccg g 261

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ctcttcttct tttccttgtg atctctcact cttgccgtgc tggagacgcg aattcacaca 120

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ctcttcttct tttcc 75

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<400> 6
tcgccggcac ggcaagagta agagatcaca aggaaaagaa gaagagtaga cacaagaagg 60
aaagatggaa gc 72

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<212> DNA
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<400> 7
gataagctta tcggttcctg cgtgtggggg gctgtgaact acacttccga ttgcaacggg 60
gagtgcgaaga ggaggggtta 80

<210> 8
<211> 109
<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide

<400> 8

ccggatccgt cgacacgttc gcctcgccga gctctcaagt ctcgaccag cagttcacgt 60
tagcgaagga accgcagtga ccacccttgt aaccctcct cttgcactc 109

<210> 9

<211> 85

<212> DNA

<213> Artificial Sequence

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<223> Synthetic oligonucleotide

<400> 9

aggggccctt aggggtttaa cggccagtca ggccgaattc gagctcggtc cccggggatc 60
ctctagagtc gacctgcagg catgc 85

<210> 10

<211> 66

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<213> Artificial Sequence

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ccctgaacca ggctcgaggg cgcgccttaa taaaagctt gcatgcctgc aggtcgactc 60
tagagg 66

<210> 11

<211> 93

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gctcgagggc ccaacctcag tacctgggtc agg 93

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<211> 93

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<213> Artificial Sequence

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gcgtttaaac ttaattaagt gtggcctgac tgg 93

<210> 13

<211> 50

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 <211> 81
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 <213> Artificial Sequence

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 atcgtgcacg gcgccgaatt c 81

 <210> 16
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 16
 gataagctta tcggttcctg cgtg 24

 <210> 17
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 17
 ggctcgagtc aagtctcgca ccagcagttc ac 32

 <210> 18
 <211> 213
 <212> DNA
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<220>

<223> Synthetic oligonucleotide

<400> 18

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gattgcaacg gtgagtgcga gaggggggtg tacaaggggtg gtcactgcgg ttccttcgct 180
aacgtgaact gctggtgcga gacttgactc gag 213
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<210> 19

<211> 838

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<221> promoter

<222> (7)...(532)

<221> misc_structure

<222> (533)...(568)

<221> terminator

<222> (569)...(832)

<400> 19

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ctatgttcaa aaatgaagaa tgtacagata caagatccta tactgccaga atacgaagaa 180
gaatacgtag aaattgaaaa agaagaacca ggcgaagaaa agaattctga agacgtaagc 240
actgacgaca acaatgaaaa gaagaagata aggtcgggtga ttgtgaaaaga gacatagagg 300
acacatgtaa ggtggaataa gtaagggcgg aaagtaacct tatcaciaag gaatcttattc 360
ccccactact tatcctttta tattttttccg tgtcattttt gcccttgagt tttcctatat 420
aaggaaccaa gttcggcatt tgtgaaaaca agaaaaaatt tgggtgtaagc tattttcttt 480
gaagtactga ggatacaact tcagagaaat ttgtaagttt gtagatctcg attctagaag 540
gcctgaattc gagctcggta ccggatccaa ttcccgatcg ttcaaacatt tggcaataaa 600
gtttcttaag attgaatcct gttgccgggtc ttgcatgat tatcatataa tttctgttga 660
attacgttaa gcatgtaata attaacatgt aatgcatgac gttattttatg agatgggttt 720
ttatgattag agtcccgcga ttatacattt aatacgcgat agaaaacaaa atatagcgcg 780
caaactagga taaattatcg cgcgcggtgt catctatgtt actagatcgg ggatcgat 838
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<210> 20

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<212> DNA

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<221> promoter

<222> (7)...(532)

<221> CDS

<222> (539)...(736)

<221> terminator

<222> (767)...(1030)

<400> 20
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ctatgttcaa aaatgaagaa tgtacagata caagatccta tactgccaga atacgaagaa 180
gaatacgtag aaattgaaaa agaagaacca ggcgaagaaa agaattctga agacgtaagc 240
actgacgaca acaatgaaaa gaagaagata aggtcgggtga ttgtgaaaga gacatagagg 300
acacatgtaa ggtggaaaaat gtaagggcgg aaagtaacct tatcaciaaag gaatcttacc 360
ccccactact tatcctttta tttttttccg tgtcattttt gcccttgagt tttcctatat 420
aaggaaccaa gttcggcatt tgtgaaaaca agaaaaaatt tgggtgtaagc ttttttcttt 480
gaagtactga ggatacaact tcagagaaat ttgtaagttt gtagatctcg attctaga 538
atg gcc tgc acc aac aac gcc atg agg gcc ctc ttc ctc ctc gtg ctc 586
Met Ala Cys Thr Asn Asn Ala Met Arg Ala Leu Phe Leu Leu Val Leu
1 5 10 15

ttc tgc atc gtg cac ggc gat aag ctt atc ggt tcc tgc gtg tgg ggt 634
Phe Cys Ile Val His Gly Asp Lys Leu Ile Gly Ser Cys Val Trp Gly
20 25 30

gct gtg aac tac act tcc gat tgc aac ggt gag tgc aag agg agg ggt 682
Ala Val Asn Tyr Thr Ser Asp Cys Asn Gly Glu Cys Lys Arg Arg Gly
35 40 45

tac aag ggt ggt cac tgc ggt tcc ttc gct aac gtg aac tgc tgg tgc 730
Tyr Lys Gly Gly His Cys Gly Ser Phe Ala Asn Val Asn Cys Trp Cys
50 55 60

gag act tgactcgagg gggggccccg taccggatcc aattcccgat cgttcaaaca 786
Glu Thr
65

tttggaata aagtttctta agattgaatc ctgttgccgg tcttgcgatg attatcatat 846
aatttctggt gaattacggt aagcatgtaa taattaacat gtaatgcatg acgttatatta 906
tgagatgggt ttttatgatt agagtccgc aattatacat ttaatacgcg atagaaaaca 966
aaatatagcg cgcaactag gataaattat cgcgcgcggt gtcactctatg ttactagatc 1026
ggggatcgat 1036

<210> 21
<211> 52
<212> DNA
<213> Artificial Sequence

<220>
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<400> 21
agcttgata aaagagacaa gttgattggc agctgtgttt ggggcgcggt ca 52

<210> 22
<211> 56
<212> DNA
<213> Artificial Sequence

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<400> 22
agtgtagtgt acggcgcccc aaacacagct gccaatcaac ttgtctcttt tatcca 56

<210> 23

<211> 52
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 23
 actacactag tgactgcaac ggcgagtgca agcgccgcgg ttacaagggt gg 52

 <210> 24
 <211> 52
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 24
 cacaatggcc acccttgtaa ccgcggcgct tgcaactcgcc gttgcagtca ct 52

 <210> 25
 <211> 56
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 25
 ccattgtgga tccttcgcta acgttaactg ttggtgtgaa acctgatagg tcgaca 56

 <210> 26
 <211> 52
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 26
 gatctgtcga cctatcaggt ttcacaccaa cagttaacgt tagcgaagga tc 52

 <210> 27
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide

 <400> 27
 gatccttcgc taacgttaac tgttggtgta gaacctgata gg 42

 <210> 28
 <211> 42
 <212> DNA
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<220>
 <223> Synthetic oligonucleotide

 <400> 28
 tcgacctatc aggttctaca ccaacagtta acgttagcga ag 42

 <210> 29
 <211> 32
 <212> DNA
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 <400> 29
 ctagtgactg caacggcgag tgcttggtgc gc 32

 <210> 30
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 30
 gcaacaagca ctgccgttg cagtca 26

 <210> 31
 <211> 32
 <212> DNA
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 <400> 31
 ctagtgactg cgctgctgag tgcaagcggc gc 32

 <210> 32
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 <220>
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 <400> 32
 gccgcttgca ctcagcagcg cagtca 26

 <210> 33
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 <400> 33

agcttgata aaagagctgc tgctgctggt agctgtgtt	40
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ctagtgtagt tgacggcgcc cc	22
<210> 36	
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aaacacagct accagcagca gcagctcttt tatcca	36
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<211> 32	
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ctagtgactg cgctgctgag tgcttggtgc gc	32
<210> 38	
<211> 26	
<212> DNA	
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gcaacaagca ctcagcagcg cagtca	26
<210> 39	
<211> 51	

<212> PRT
<213> Artificial Sequence

<220>
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<221> VARIANT
<222> (1)...(10)
<223> region of variable length from 1 to 10 amino acids
where Xaa = any amino acid

<221> VARIANT
<222> (12)...(21)
<223> region of variable length from 1 to 10 amino acids
where Xaa = any amino acid

<221> VARIANT
<222> (23)...(25)
<223> Xaa = any amino acid

<221> VARIANT
<222> (27)...(35)
<223> region of variable length from 1 to 9 amino acids
where Xaa = any amino acid

<221> VARIANT
<222> (37)...(43)
<223> region of variable length from 1 to 7 amino acids
where Xaa = any amino acid

<221> VARIANT
<222> (45)...(45)
<223> Xaa = any amino acid

<221> VARIANT
<222> (47)...(51)
<223> region of variable length from 1 to 5 amino acids
where Xaa = any amino acid

<400> 39
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa
1 5 10 15
Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa
20 25 30
Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Cys Xaa Xaa
35 40 45
Xaa Xaa Xaa
50

<210> 40
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<221> VARIANT

<222> (2)...(2)
<223> Xaa = any basic amino acid

<221> VARIANT
<222> (3)...(7)
<223> region of variable length from 0 to 5 amino acids
where Xaa = any amino acid

<221> VARIANT
<222> (1)...(9)
<223> Xaa = Any Amino Acid

<400> 40
Lys Xaa Xaa Xaa Xaa Xaa Gly His
1 5

<210> 41
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 41
Lys Arg Arg Gly Tyr Lys Gly Gly His
1 5

<210> 42
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<221> VARIANT
<222> (1)...(9)
<223> region of variable length from 0 to 9 amino acids
where Xaa = any amino acid

<221> VARIANT
<222> (11)...(11)
<223> Xaa = any amino acid

<221> VARIANT
<222> (1)...(11)
<223> Xaa = Any Amino Acid

<400> 42
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gly Xaa
1 5 10

<210> 43
<211> 10
<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<221> VARIANT

<222> (2)...(9)

<223> region of variable length from 0 to 8 amino acids
where Xaa = any amino acid

<221> VARIANT

<222> (1)...(10)

<223> Xaa = Any Amino Acid

<400> 43

Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asp
1 5 10

<210> 44

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<221> VARIANT

<222> (2)...(6)

<223> region of variable length from 0 to 5 amino acids
where Xaa = any amino acid

<221> VARIANT

<222> (1)...(7)

<223> Xaa = Any Amino Acid

<400> 44

Gly Xaa Xaa Xaa Xaa Xaa Asn
1 5

<210> 45

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<221> VARIANT

<222> (2)...(5)

<223> region of variable length from 0 to 4 amino acids
where Xaa = any amino acid

<221> VARIANT

<222> (1)...(5)

<223> Xaa = Any Amino Acid

<400> 45

Glu Xaa Xaa Xaa Xaa
1 5

<210> 46
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
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<400> 46
Asp Lys Leu Ile Gly Ser
1 5

<210> 47
<211> 10
<212> PRT
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<220>
<223> Synthetic peptide

<400> 47
Val Trp Gly Ala Val Asn Tyr Thr Ser Asp
1 5 10

<210> 48
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 48
Gly Ser Phe Ala Asn Val Asn
1 5

<210> 49
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 49
Leu Leu Arg Gly Tyr Lys Gly Gly His
1 5

<210> 50
<211> 3
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<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 50

Asn Gly Glu

1

<210> 51

<211> 3

<212> PRT

<213> Artificial Sequence

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Ala Ala Glu

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Ala Ala Ala Ala Gly Ser

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5

<210> 53

<211> 5

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide

<400> 53

Ser Leu Asp Lys Arg

1

5